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THE OCCURRENCE OF *VIBRIO FOETUS* IN ABORTED MATERIAL DERIVED FROM COWS INOCULATED WITH S. 19 *BR. ABORTUS* VACCINE

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With the routine use of S. 19 vaccine, brucellosis has been checked to such a degree that already the disease is considered of little economic importance in some parts of the country (Clark 1949, Stewart 1950). Control of this disease, however, has made more evident the existence of other types of abortion.

With the kind co-operation of practising veterinary surgeons, an investigation of the causes of abortion in herds inoculated against *Br. abortus* has been commenced, and it will be shown in this paper that in some vases *V. foetus* is associated with the occurrence of abortion.

MATERIALS AND METHODS

Twenty herds of various breeds of cattle were available for examination in Berkshire; all had a similar history of previous vaccination with S. 19. When an abortion occurred various materials were collected and forwarded to the laboratory as soon as possible; these consisted of:—

(*a*) Foetal stomach contents (if available).
(*b*) Cotyledons (if available).
(*c*) Colostrum.
(*d*) Blood.

The amount of material collected from the different herds was as follows:—

Number of herds, 20; number of abortions, 32; number of blood samples, 29; number of cotyledon samples, 7; number of foetuses, 23; number of colostrum samples, 25.

Cotyledons were rarely received, occasionally the foetus was unobtainable, and in three instances a foetus was delivered to the laboratory without a blood or milk sample.

BACTERIOLOGICAL EXAMINATION

It was essential, in the first instance, to eliminate the possibility of *Br. abortus* infection in these animals despite the history of vaccination with S. 19, and therefore serological, cultural and biological examinations were performed according to the technique described in previous papers, *e.g.*, McDiarmid (1949). In the subsequent search for *V. foetus*, the following methods were adopted:—

(1) Smears from the foetal stomach contents and/or cotyledons were stained by dilute carbol fuchsin. These were examined for the characteristic spiral forms of the organism. (See photomicrograph, Fig. 1.)

(2) Foetal stomach contents and/or a suspension of cotyledons were streaked in 5 per cent. ox blood agar slopes and also inoculated into 0·3 per cent. soft agar medium containing 5 per cent. ox blood. These media were contained in McCartney bottles in which a suitable atmosphere for growth was created by screwing the caps down firmly; they were examined after three to six days' incubation at 37° C. The presence of *V. foetus* was confirmed by microscopic examination, and a typical smear from a culture is shown in photomicrograph, Fig. 2.

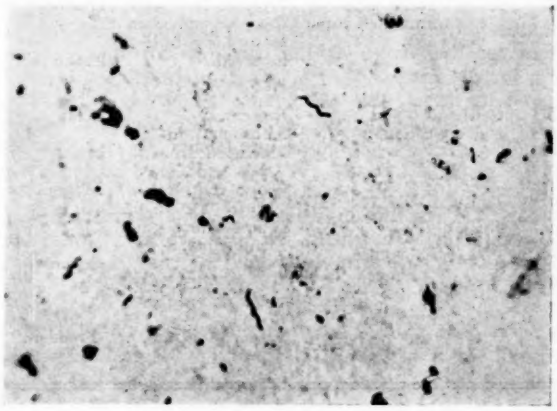

FIG. 1.

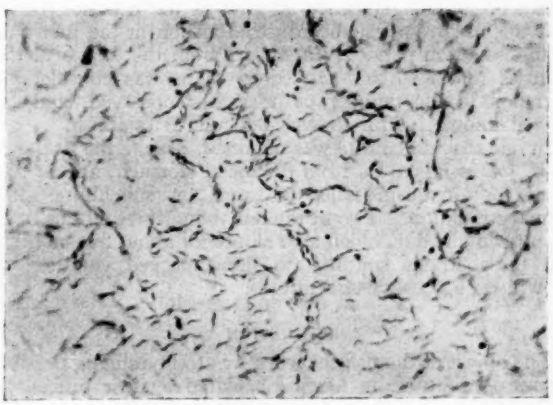

FIG. 2.

RESULTS

Br. abortus infection was detected in three animals from three herds. The strains recovered were fully virulent, distinct from strain 19; all three herds showed a history of brucellosis prior to vaccination. Apart from this, during

the present survey, the only organism which appeared to be of some significance was *V. foetus*. This organism was found in seven animals in three herds, *i.e.*, 30 per cent. of the foetuses examined, as shown in Table I.

TABLE I

DETAILS OF HERDS FROM WHICH *V. foetus* WAS OBTAINED

Herd No.	History of vaccination with S.19	Infertility problem	Name of cow	Period of gestation at which abortion occurred (months)	Presence of *Br. abortus* in any tissue examined (Biological tests)	Aggl. test for *Br. abortus*	Presence of *V. foetus* in foetal stomach	
							Smears	Cultures
1	Calfhood	None	Venelus	7	—	1/20	+	+ (first culture only)
2	Adult and calfhood, but terminated three years ago.	Present, but only this year, and other factors, *e.g.* bulls, involved.	Heather	6	—	1/80	+	+
			Leone	6	—	1/10	+	+
3	Calfhood and after every calving.	Present. Abortions increased from 2 per cent. to 8 per cent. from 1948 to 1950, and much infertility.	Naila	7	—	1/320	+	+ (first culture only)
			Margaret	7	—	1/160	+	+
			Success	5	—	1/40	+	Nil
		Conception rate, 3 : 1	Freedom	8	—	1/320	+	+

In the present survey the abortions due to *V. foetus* occurred between the fifth and eighth month of pregnancy, a fact of some significance in view of the common belief that this organism usually causes abortion in the first half of the gestation period. In smears from the tissues of the foetuses and also the cotyledons there was considerable variation in the number of organisms observed, and, as is well known, cultures were difficult to establish.

In one case no culture was obtained, despite the presence of *V. foetus* in smears from the foetal stomach, and in two cases the organism failed to grow on subculture after primary isolation. Two of the remaining three strains have been maintained on blood agar slopes for about five months, but these strains continue to show marked variation in growth on successive subcultures.

DISCUSSION

The object of the present work was to investigate possible causes of abortion in herds inoculated against brucellosis in Berkshire, and *V. foetus* was believed to be responsible for several cases. Since the work of Smith (1918) this infection in cattle has attracted considerable attention in many parts of the world, particularly in the U.S.A. (Plastridge & Williams 1943, Roberts, Gilman & Larsen 1950, and Moore 1950) and in Holland (Stegenga 1950); the general clinical and pathological features of this condition have been adequately dealt with by these and previous authors. In these two countries *V. foetus* has been incriminated as a major cause of abortion and also of infertility. Of the three herds from which *V. foetus* was isolated in this investigation, one had no apparent infertility problem, the second had experienced no breeding difficulties until the present year and the infertility in this herd is at present being investigated, but the information so far available suggests that *V. foetus* is probably not responsible in this instance. In the third herd a significant rise, from 2 per cent. to 8 per cent., occurred in the abortion rate over a period of two years from 1948 to 1950, despite the fact that vaccination against brucellosis commenced in 1946. Infertility was encountered and was associated with retained placentae, post-parturient discharges, stillbirths, weak calves which later died, and a low conception rate (three services per conception). *C. pyogenes* was previously isolated from this herd and had been accepted as a possible causal agent for these conditions.

V. foetus infection has only rarely been described in cattle in this country, *e.g.*, M'Fadyean and Stockman (1913) and McEwen (1940). This limited amount of information may, in all probability, be due to the previous high incidence of *Br. abortus* infection which masked most other causes of abortion. In addition, several difficulties are associated with the diagnosis of vibrionic abortion. So far the technique of the agglutination test has not been sufficiently developed to enable it to be used with real accuracy and a satisfactory stable antigen is yet to be prepared. Cultures are difficult to grow, frequently being lost during subcultivation, and although the technique of drying the primary isolations may to some extent eliminate this difficulty, no evidence is yet available. Accordingly, because of these difficulties, the 30 per cent. infection rate described in this paper, even although it appears somewhat

higher than the figures available from America, may, in fact, be considerably lower than the true incidence of the organism. Lovell (1950) has already drawn attention to similar condition where the distribution of an organism may be more widespread than hitherto believed. We would emphasise the fact that a laboratory diagnosis is essential in determining the presence of vibrionic abortion as the clinical picture is very similar to brucellosis and infertility cannot be attributed to *V. foetus* without adequate microscopic and cultural confirmation. In the present preliminary work no clear-cut association of the infection *per se* with infertility could be established, but the investigation will continue with this possible association in view. Moreover, quite apart from the abortions produced by *V. foetus* causing economic loss, and interfering with the interpretation of the results of vaccination with S. 19, this organism has recently been shown to be pathogenic for man (Vinzent, Delarue & Herbert 1950, Vinzent, Dumas & Picard 1947), and therefore it is essential that an effort should be made to determine the true extent and distribution of the organism in this country.

Summary

During an investigation into the possible causes of abortion in cattle previously vaccinated with S. 19 *Br. abortus*, it was found that *V. foetus* was present in seven of 23 aborted foetuses (30 per cent.) obtained from 20 herds in Berkshire.

Acknowledgment.—We wish to express our thanks to Mr. D. L. Stewart, of the Reading Cattle Breeding Centre, for his interest in this work, and to Mr. F. Summerfield, senior technician of the Agricultural Research Council, Compton, for the photomicrograph.

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PREPARATION OF SCIENTIFIC PAPERS

A pamphlet, entitled "General Notes on the Preparation of Scientific Papers" (pp. 26. London: Cambridge University Press, 1950. 2s. 6d. net), has been prepared by a sub-committee of the Information Services Committee of the Royal Society, under the chairmanship of Professor G. L. Brown, as the outcome of concern expressed at the Royal Society's Scientific Information Conference in 1948 about the quality of scientific papers presented for publication. The pamphlet is of a general nature and is concerned with the presentation rather than with the writing of scientific papers. It is intended to supplement and not replace those specific instructions to authors which are issued by many societies and other publishing bodies, and it emphasises a number of points in the latter instructions to which authors should pay stricter attention. Some sections of the pamphlet should also be of assistance to typists copying papers, and some of the sections, such as those dealing with nomenclature, symbols and abbreviations, conveniently bring together the sources of reference. The final section consists of a short bibliography which might, with advantage, be extended, for the books on writing, in particular, are too limited.—*Nature.*

WAR-TIME EXPERIENCES WITH THE R.A.V.C. AND REMARKS ON SOME OF THE DISEASES ENCOUNTERED *

BY

BRIGADIER E. S. W. PEATT, O.B.E., F.R.C.V.S.

Introduction

When the Secretary asked me to read a paper at this meeting I thought of several subjects dealing with horses on which I might speak, but eventually decided that it would probably interest you more to hear something of the work of the Army Veterinary Service, more particularly during the two world wars, and with especial reference to some of the more important diseases of animals encountered.

Experience of the various conditions and diseases about which I will talk was gained in Salonica, Turkey, Gibraltar, Palestine, Syria, Egypt and India.

Between the two world wars the R.A.V.C. dwindled to vanishing point due to mechanisation, but to everybody's surprise once the war got going we expanded enormously, more especially in India owing to the prolific use of mules in Burma. At the end of the war with Japan the strength of the veterinary services in India, exclusive of the Remount Service, was approximately 500 officers, 200 V.C.O.s and 7,000 I.O.R.s. Total approximately 8,000.

So unusual was the sight of an officer of the R.A.V.C. in 1939 that, on reporting at Scottish Command Headquarters on the day before war was declared, complete with a "V" on my arm, a harassed Staff Captain stared at me and then said, "Oh! a medical officer—venereal control, I presume"!!

In the first world war the A.V.C., as it then was, was almost exclusively employed in looking after the health of horses and mules, but in the last war the duties were much more varied and cattle, sheep, pigs, goats, dogs and poultry were dealt with, as well as equines. In addition, the R.A.V.C. took over the Remount Service in 1941.

On arrival in Salonica in 1916 I was given an early insight into one of our problems. I reported to No. 18 Veterinary Hospital, the base depot, and was interested to note that the mess marquee, in which I was given a cup of tea, had a black lining. Imagine my surprise when a mess servant came in and, after politely asking me to step into the ante-room, proceeded to spray the inside of the tent, which gradually assumed its normal yellow colour as thousands of flies fell to the floor and were duly swept up in several buckets.

Flies were, indeed, a menace and one of our problems was to find a wound dressing which was also a fly deterrent. General Eassie's famous oily dressing more or less filled the bill and it was obligatory to use it on all superficial wounds. It consisted of linseed oil and turpentine with a small proportion of creosote.

In the second world war the 1st Cavalry Division went overseas to Palestine in December, 1939, and I accompanied it as Assistant Director of Veterinary Services. The move of this division with its 7,000 horses was in itself an experience to be remembered. It moved in a succession of flights, first by rail from the north of England to Dover, then by sea to France, across France by rail to Marseilles and on by sea to Haifa in Palestine.

* These notes formed the basis of an address given to the South-Eastern Division, N.V.M.A., at Ashford, on April 26th, 1950.

In spite of the fact that both men and animals were untrained and inexperienced and also that the weather was extremely bad, the losses on this journey amounted to only a fraction of 1 per cent.

For about a year I had the pleasure of looking after the health of the horses of eleven cavalry regiments, then mechanisation started and the horses were handed in to remount depots and later formed in horse transport companies.

Stampedes

A brief account of a stampede which occurred in Scotland in November, 1939, may interest you. During some frosty weather two squadrons of a Yeomanry regiment were being led at exercise along a main road when a drunken farmer in a Ford car scared the leading horses of "A" Squadron. One got loose and, galloping back along the road, pursued by the hilarious farmer, dashed into the horses of "B" Squadron round a corner. About 150 horses broke away and galloped madly along the road towards their camp. On reaching the entrance gate, half managed to turn into the camp, the remainder galloped into a cul-de-sac ending in a brick wall, 7 feet high, which they completely demolished. Meanwhile, the first batch galloping towards the horse lines encountered 10 to 15 motor-cars parked outside the officers' mess, which they took in their stride, jumping some and landing on top of others. Six cars were badly smashed with hoof holes in the roofs, bonnets, etc.; six horses were killed or destroyed at once, but another 15 were eventually put down. This was, indeed, an expensive way to learn the lesson that bits should always be used when exercising horses on the open road.

We had two stampedes within 24 hours of each other in a Yeomanry regiment in Palestine. The first occurred on the march when the regiment was halted and both men and horses were having their mid-day meal. I warned the O.C. to be careful that night as horses are liable to stampede a second time; he took every precaution, doubling line guards and putting in extra picketing pegs. In the middle of the night, for no apparent reason, the horses suddenly became restive—those that were lying down got up, and all stood for a short time with ears pricked staring into the night; then, suddenly, the whole lot pulled up their picketing lines and went off in a cloud of dust.

Contagious and Infectious Diseases

Glanders.—In 1917 we had an outbreak of acute pulmonary glanders in a batch of newly arrived American mules; about 50 died in three weeks. Inadvertently I discovered the first case. At 11 p.m. one night I was sent for by the orderly sergeant to attend to a mule suffering from laryngitis which was suffocating. It was staggering about the loose box fighting for breath and with some difficulty, by the light of a hurricane lamp, I inserted a tracheotomy tube. In doing so I got a shower of mucus and froth from the trachea in the face. For the first time the thought of glanders struck me and, without hesitation, I immersed my head in a bucket of Jeyes' fluid, which considerably altered my complexion for some days as it was a strong solution. The mule died that night and on making a *post-mortem* examination I was horrified to find three rows of glanders ulcers in the trachea. For months afterwards I imagined I had glanders every time I felt out of sorts.

In 1918 some divisions of the Greek Army came into the war on our side and I was sent to mallein the horses of a Greek cavalry regiment before our staff would permit it to go into the line alongside British units. Six animals reacted, all ponies, and the Greek O.C. produced them for me to destroy one morning. On arrival I found the ponies on the edge of a deep ravine and, on looking over, one could see quantities of bones at the bottom. Thoughtfully the Greeks had detailed a soldier with a rifle to do the shooting, but I preferred to do it myself with a humane killer. Five ponies were despatched, falling over the cliff and bounding from crag to crag until they reached the bottom, but I was unable to get near the sixth, a grey stallion, who bit and struck out with his forefeet. Meanwhile the soldier with the rifle kept begging me to let him have a go and at last, foolishly, I did so. He immediately knelt down, took aim from 20 yards and pulled the trigger, but at that moment the man holding the pony lost his nerve and dropped the head rope, making the pony throw up his head. The bullet hit the pony in the neck and he spun round and set off at full gallop through the crowd of Greek soldier spectators. The marksman, however, was quite undismayed and standing up shot the pony stone dead through the base of the ear at about 30 yards in the midst of the crowd.

In the last war we were remarkably free from glanders, only two small outbreaks occurring in the Middle East while I was there.

Rabies.—The most unpleasant disease with which V.O.s have to deal abroad is rabies, and I have seen a lot of it in various countries, principally in India and Gibraltar.

It is very disconcerting to arrive at one's surgery and find a pretty girl sitting on a chair nursing a dog with rabies; that happened twice to me in Gibraltar and on both occasions the owner had stuck her fingers down the dog's throat in search of the imaginary bone. In Gibraltar we had a bad outbreak in 1934, which became quite a problem when the cats got it, because you cannot muzzle them. Two people—one a little girl—were attacked by rabid cats and badly mauled. Eventually I advised the Government to destroy all stray cats, of which there are hundreds on the Rock, mostly at the docks. After several hundred cats had been destroyed the Medical Officer of Health came to see me to say that a case of plague had occurred and that black rats had been seen in increasing numbers at the docks. He asked, "Which shall we have, plague or rabies?" We decided on rabies and stopped destroying cats. A cat with rabies is a fearsome sight, and two that we managed to catch and put in cages pulled out all their teeth and claws on the bars.

Rabies in horses is quite common in India and is generally caused by the bite of a rabid jackal. I have never seen it in horses; I have, however, had to deal with a rabid camel, and the only way in which we could control the animal was to build a wire fence round it.

I have not much faith in the anti-rabic inoculation in dogs as I have seen it break down on several occasions, once in a pack of hounds in India—and dealing with rabies in a pack of hounds can only be described as a nightmare.

The average "man in the street" here little realises how lucky he is to live in a country which is free from this terrible disease due to our strict quarantine laws. I once visited Bucharest for two months and every day I passed the Anti-Rabic Institute, which had hundreds of poor people camped in the grounds undergoing anti-rabic inoculation.

Anthrax.—Anthrax is very prevalent in Palestine and in 1941 it was decided to protect all Army horses in the

country with anthrax spore vaccine. The vaccine used was prepared in the Veterinary Laboratory in Cyprus and had been used there most successfully in the protection of sheep and goats. In order to test the effect of the inoculation we did ten horses to begin with, and as there were no ill-effects and little reaction after ten days, we proceeded to inoculate 4,430 horses with the Cyprus vaccine and 700 with some Australian vaccine which we had in stock.

About three weeks after the inoculations were given we got the first death and during the next three weeks 67 horses died, all of which had the Cyprus vaccine. This works out at 1.5 per cent. exclusive of horses done with Australian vaccine.

The symptoms were typical of anthrax—high temperature, accelerated respirations, great dullness, followed by colicky pains, brownish red diarrhoea, collapse and death. In some cases the urine was of a reddish colour, and bleeding from the nostrils occurred. In others the legs swelled and bloody serum oozed through the skin, and sometimes large swellings occurred about the head and at the site of inoculation in the breast.

Post-mortem appearances were typical of anthrax, but it proved quite impossible to demonstrate the anthrax bacillus microscopically, and equally impossible to recover it by animal inoculation.

No deaths occurred amongst the 700 horses vaccinated with Australian vaccine, or in 1,500 uninoculated animals.

The vaccine was, of course, examined and declared free from contamination and of normal strength. We eventually came to the conclusion that English horses probably had less resistance to anthrax than Cyprus horses, where the disease is very common.

In India, towards the end of the war, we had a lot of trouble with anthrax in sheep and goats being sent to Ceylon. Inoculation with anthrax spore vaccine failed to give an immunity; the long journeys on hoof, and in trains and ships, had a debilitating effect, rendering the animals more susceptible to the disease and less able to produce an immunity after inoculation. On the other hand, spore vaccine proved 100 per cent. effective in horses and mules and elephants in Burma, where the disease was so widespread that all equines were inoculated biannually.

Epizootic Lymphangitis.—We were free from epizootic lymphangitis in the Middle East until the shortage of mules forced the D.D.V.R.S.* to bring them from the Sudan in 1942. Some time after their arrival cases started to occur —some showed the typical symptoms, but the types which caused the most trouble in diagnosis were those affecting the eyes and lungs. In the former, often the only symptom was conjunctivitis with a slight purulent discharge, and in the latter unthriftiness. By careful supervision and destruction of positive cases the incidence was kept down to very small proportions.

In India the disease did not appear until animals were brought back from Burma, and then we had several outbreaks.

A young V.O., Captain Bullen, who was in charge of No. 1 Field Veterinary Laboratory, succeeded in producing a diagnostic agent similar to mallein, called cryptococcin. It is a protein precipitate from sterilised broth cultures of the Cryptococcus of Rivolta, and when injected subcutaneously in doses of 1 c.c. into infected animals caused a marked and persistent allergic reaction. Unfortunately a small proportion of apparently healthy animals gave positive reactions; even so, cryptococcin proved of great use in dealing with outbreaks, the small numbers of apparently non-infected animals destroyed being considered a worthwhile waste. Bullen is continuing his research at the Institute of Animal Pathology at Cambridge University, and if he succeeds in perfecting cryptococcin will have made a contribution to veterinary science of the highest order.

Surra.—During the war in Burma by far the most serious disease with which we had to contend was surra. The country is noted for it, and before the war it was impossible to keep equines in certain areas at all. As our forces approached these surra-infested areas it was of the greatest importance to find a means, not only of treating cases, but of preventing the disease.

Naganol, a German preparation, was a known curative agent and Imperial Chemicals got busy and rapidly analysed the preparation and produced a British equivalent, with the same chemical composition, called antrypol.

Experiments were then carried out to see if antrypol could be used to protect horses and mules from the disease; eventually a technique was evolved which, although not 100 per cent. effective, did give a high degree of immunity.

Unfortunately it meant giving each animal an intravenous injection of the drug every four to six weeks. As the number of mules and horses employed in the 14th Army numbered about 3,000 per division, this was a very big undertaking and could not be carried out by the normal veterinary staff. Anti-surra units were therefore formed, consisting of eight officers (British and Indian) and an establishment of I.O.R.s as drivers, servants, dressers, etc. Each officer had a jeep or "15 cwt." with a complete outfit of microscopes, intravenous injection apparatus, etc.

When a case of surra was reported, say from a Mule Company consisting of 400 animals, one of these units was sent to the scene and proceeded to take and examine blood smears from every animal and then treat all positive cases by intravenous injections of antrypol.

In the same way units operating in a surra-infested zone were protected by a modified dose of antrypol given to each animal every six weeks. The success of this technique was soon evident, and whereas Japanese animals were decimated in bad surra areas our animals escaped lightly. This fact was then made use of by the operational staff, who planned to manoeuvre Japanese formations into infected country with the object of putting their supply organisation and pack artillery out of action.

A drawback to the use of antrypol is that after a time the trypanosomes become drug fast and the preparation loses its curative power. The blood for smears was obtained by pricking the tip of the animal's ear and was equally unpopular with the mules and the personnel of the units for obvious reasons.

Surgical Conditions

Quittor.—In Salonica mules and horses were kept in the open in kraals in both remount depots and veterinary hospitals. In winter these kraals became boggy, and in order to prevent the animals completely disappearing in the mud thousands of tons of stone were dumped into them. As a result we had incredible numbers of underrun soles and cases of quittor.

I remember taking over almost 200 cases of quittor in No. 17 Veterinary Hospital when I assumed the duties of surgical officer in 1917.

We found that the classical operation of stripping the wall of the hoof incapacitated animals for too long, and in consequence a more simple technique was instituted. This consisted in cutting a semi-circular window in the hoof

* See end for list of abbreviations.

wall immediately below the coronet and opposite the diseased part of the lateral cartilage, the actual spot being fixed by probing. The diseased portion of the cartilage was then removed by curetting and the lower semi-circular edge of hoof shaved to paper thinness to prevent the holding up of discharge. The wound was then packed with B.I.P.P. and left for two days, then redressed with B.I.P.P. after wiping with spirit and left for 14 days.

A high percentage of cases were fit for work in five to six weeks.

Muting of Horses and Mules.—In 1943 General Wingate enquired from his veterinary staff if it was possible to devoice mules, as on many occasions during his first expedition behind the enemy lines the braying of mules had given away the position of his troops to the enemy.

Brigadier C. M. Stewart, R.A.V.C., carried out experimental operations and evolved a technique, and in all 5,000 animals were devoiced with most successful results. The operation consisted in the total removal of both vocal chords, the initial procedure being as for the roaring operation. Care must be taken not to injure the small cartilaginous processes.

After the operation animals recovered rapidly and were fit for work in three weeks; loss of voice was complete in 95 per cent. of cases; the remainder could make a wheezing noise only.

The operation had no effect on the working capacity of the animals, and during the following campaign in Burma the morale of men working with mules and horses behind the enemy lines was raised considerably by the knowledge that their animals could not advertise their presence to the enemy.

I inspected one of these Brigade Groups before it left India for Burma and to see a unit of 400 to 500 mules standing in complete silence was quite uncanny. Swimming rivers had always proved a problem, as the mules kicked up such a noise calling to their pals across the water, so to speak; with muted mules all this ceased and all that was necessary was to send a man over the river, who blew the feed whistle, and the animals went quietly into the water and swam across.

Dropping Mules by Parachute

During this time the A.D.V. & R.S. of Wingate's Force, Lt.-Col. Barlow, R.A.V.C., assisted in carrying out experiments in dropping mules by parachute, and actually perfected a method of doing it successfully. The mule was partially anaesthetised with chloral hydrate and secured to a sort of mattress made of collapsible pontoons. The whole package plus mule was then slid out of the door of a Dakota with six statichutes attached. On reaching the ground it hit it with some force and bounced in the air, but the mules suffered no ill-effects and were fit to carry a pack load in 15 to 20 minutes.

Military Dairy Farms in India and Diseases of Cattle

I now come to a subject which perhaps is more up your street than the foregoing, namely, dairy farms. Military dairy farms were established in India many years ago when the need for fresh milk and butter for Europeans became apparent.

The herds consist principally of buffaloes with a small percentage of crossbred cows.

At first Ayrshires were imported and crossed with indigenous breeds in order to upgrade and, at the same time, produce progeny with increased resistance to climate and diseases prevalent in the country. The present policy is to import Friesian bulls from the U.K. and heifers from South Africa. A five-eighths cross is considered the most satisfactory. In general, cross-breeding from imported cattle has been found to decrease milk yield whilst improving the constitution.

It is interesting to note that the milk of the buffalo contains 7 to 8 per cent. of butter fat, which is far in excess of the fat content of cow's milk. It is therefore necessary to dilute buffalo milk with separated milk until the fat content is reduced to 3·7 per cent.

All milk is pasteurised in dairies before issue. As a result of selective breeding within the dairy farms the milk yield of buffaloes has been increased from the normal 25 lb. per day to 50 lb. in some cases.

The strength in animals of the Military Dairy Farms in 1946 was 50,000 buffaloes and 5,000 cows.

The size of each farm varies according to the number of military personnel which it has to supply—from 500 head to 2,000, and even 3,000.

For the purpose of administration the country is divided into circles; each circle contains so many farms with an officer of the M.F. Dept. in charge. The circles are administered from the command headquarters in which they are placed, where an A.D.M.F. is located, and the commands then come under the jurisdiction of the Director of Military Farms at G.H.Q., Simla. Prior to the late war the veterinary supervision of these farms was very sketchy, but the great expansion during the war presented an opportunity to provide a more comprehensive veterinary service. In 1944 the D.V.S. in India introduced the following organisation; an A.D.V.S. in the Director of Farms office at G.H.Q., Simla, executive V.O.s at Circle H.Q.s in veterinary charge of groups of farms, and Indian commissioned veterinary officers and veterinary assistant surgeons in the actual farms, on the basis of one for each 1,000 head of dairy stock.

When I assumed the duties of D.V.S. in 1944 I was immediately struck by the urgent need in the farms for more up-to-date veterinary technique and supervision, more especially in the realms of fertility, sterility and control and treatment of such diseases as mastitis, metritis, etc.

Twelve young V.O.s just out from the U.K. were selected—all had dairy farm experience, and they were placed in charge of the circles—much to their disgust, I may mention. They got down to pregnancy diagnosis and the study of fertility, and in one year weeded out some thousand unproductive animals, some of whom had not had a calf for four years and never could have become pregnant. In addition, they succeeded in getting in calf large numbers of animals, both cows and buffaloes, which had not been pregnant for years. The Military Farms Directorate, which had not been very enthusiastic in welcoming the advent of this new veterinary organisation which had to be paid for out of their own funds, worked out that the pay of these officers had been saved many times over, and from a lukewarm attitude towards the veterinary organisation they now clamoured for more V.O.s.

Retention of the placenta is very common in the Indian buffalo. An interesting experiment carried out in one farm of 1,000 animals under the initiative of the A.D.V.S. Farms over a period of one year, proved conclusively that allowing the calf to suckle for four days instead of removing it immediately after birth reduced the incidence of retained placenta in a most spectacular manner.

Prolapse of the uterus is also common in buffaloes, which are very sensitive to any manual exploration of the genital organs. The introduction of epidural anaesthesia proved a godsend in dealing with these cases. The site of injection

is different from that for cows and is the apex of the triangle formed by the ischial bone with the sacral vertebrae, injecting as close as possible to the apex. The needle is held at an angle of 60° and need not penetrate more than 1 inch. Novocain cobefrin, 2 per cent., in doses of from 10 to 30 c.c., proved satisfactory.

Panting.—A peculiar condition known as panting causes losses in cows of the higher crosses. It is also well known in South Africa and America and is similar to dry coat in horses. It occurs mostly in the hot weather and attacks young stock as well as dry and milking cattle. Symptoms consist of distressed breathing or panting, sometimes with a high temperature, and the coat is always dry and staring, the skin hidebound and condition poor. It is thought to be due to some disturbance of the heat-regulating mechanism. Such animals are not used for breeding and are kept in the cooler stations.

Rinderpest.—All cattle and buffaloes are immunised against rinderpest by the inoculation of 2 c.c. goat-blood virus subcutaneously. Serum is used simultaneously in adult buffaloes as they are liable to give severe reactions. Pure-bred stock with over 50 per cent. imported blood also receive serum.

Animals bred on the farms are first done at six months and again at two years; the immunity is then considered lifelong. It is in fact practically 100 per cent. effective and I witnessed an impressive demonstration of this in 1945 in animals purchased for slaughter. It was the practice to protect each batch of animals immediately they were purchased. At one livestock depot, owing to an oversight, a batch of some 200 unprotected cattle were turned out in paddocks with some already inoculated. The day after their arrival cases of rinderpest occurred amongst the new batch and some dozen deaths occurred, but not one of the protected animals developed the disease.

Foot-and-Mouth Disease. — Foot-and-Mouth disease occurs annually throughout India in civilian-owned cattle and consequently we got a number of outbreaks in military dairy farms. Buffaloes and indigenous cattle have a considerable degree of resistance to the disease and are not as a rule seriously affected. In them the symptoms are usually mild; at times the feet only are affected, sometimes only the mouth.

On the other hand, imported cattle, such as Friesians, contract the disease in a much more acute form and lesions are often severe and mortality high. Immunity following on attack is of short duration, probably about six months, and owing to the several strains of virus existing in the country animals just recovered from the disease are liable to reinfection with a fresh virus. Treatment consists in the usual isolation measures, disinfection of udders with 4 per cent. boric acid solution, chlorination of drinking water using 90 grammes to the gallon, foot-baths of 2 per cent. copper sulphate and dressings of eupad. For mouth lesions a saturated solution of magnesium sulphate is useful. Animals with foot lesions must be kept on dry standings.

Haemorrhagic Septicaemia.—Haemorrhagic septicaemia outbreaks are common in the rainy season, but are not a cause of serious economic loss. They are dealt with by the immediate inoculation of all cattle in a farm with vaccine as soon as a case occurs. If vaccine is not available immediately, serum is used.

Variola Vaccinia (Cow Pox).—Variola vaccinia is relatively common and is the cause of considerable losses in milk yield. A policy of vaccination was started before I left India, but no assessment of results had been made.

The site chosen for vaccination was the internal surface of the conchal cartilage of the ear. The part is washed with soap and water and the vaccination carried out with undiluted seed lymph or ordinary calf lymph, as used for human vaccination. A reaction occurs three days later.

I think that every disease with which you are familiar occurs in India, and many others. Tuberculosis, however, is not the problem in India which it is in this country, in spite of the fact that in most dairy farms there is no grazing and cattle are entirely stall fed; they are, however, turned out in paddocks for several hours daily and wallows are always provided for the buffaloes.

Meat Inspection

During all my service in the Army I have strongly resented the fact that meat inspection was a responsibility of the R.A.S.C. or R.I.A.S.C. and not the R.A.V.C. When therefore the D.D.S.T. in Ninth Army asked me if I was prepared to take over this responsibility in 1942 I jumped at it. We rapidly organised an inspection service, using trained N.C.O.s as assistants to V.O.s, and within 12 months had teams of officers and N.C.O.s carrying out meat inspection throughout Syria and Palestine in all Army abattoirs.

In India, in 1944, the issue of two anthrax carcases to a battalion of infantry provided a suitable opportunity to raise the question with the Q.M.G. in India. On hearing of this incident he sent for the Director of Supplies and Transport and asked him, in my presence, if his meat inspectors were capable of diagnosing anthrax microscopically. He had to admit that they were not qualified to do so. As a result of this the D.V.S. in India took over responsibility for the inspection, *ante-* and *post-mortem*, of all animals killed for meat for the troops.

We organised courses of meat inspection at the I.A.V.C. Centre at Ambala and a young officer who had been an inspector in the Belfast abattoir was put in charge.

No statistics of any kind were available in India and it was only after a year's experience that for the first time one had any idea of what were the principal conditions prevalent in the country. The size of the commitment can be gauged from the following figures for the month of December, 1945:—

	Cattle	Sheep and goats	Pigs
Animals slaughtered	5,074	127,700	5,137
Number of carcases inspected ...	4,969	121,619	5,137
Percentage inspected	97%	95%	100%

Fish and poultry also were inspected.

The principal diseased conditions encountered were:—

(1) *Cysticercosis.*—Both *cysticercus bovis* and *cysticercus cellulosae* were fairly common in cattle and pigs respectively; but not nearly so prevalent as in Syria, where I have seen cysticercus cysts throughout a carcase and so numerous that in some of the predilection sites you could not place the blunt end of a pencil between them.

The most dangerous meat was pork from pigs reared in the villages. The medical authorities were very scared of *cysticercus cellulosae*, as several men invalided to the United Kingdom with epileptic fits were thought to have developed them as a result of cysts in the brain from eating pork.

About this time the staff of my directorate in Simla had it impressed upon them how necessary the inspection of

meat was, as two of the officers contracted tapeworm—one actually held the local record at 37 feet, and the other had the unusual experience of actually seeing cysts in a piece of underdone steak which he was given at a luncheon party, but, being too polite to embarrass his hostess by refusing it, he ate it.

(2) *Emaciation and Dropsy* were common in sheep and goats, as was *caseous lymphadenitis*, the common site of infection in the last-named condition being the prescapular lymph glands.

(3) *Hydatid cysts* are very common and over 70 per cent. of livers in cattle and 35 per cent. in sheep and goats are condemned for this condition.

(4) *Tuberculosis* is rare.

I am glad to say that the Army Veterinary Services of both India and Pakistan are still carrying out meat inspection for their respective armies. Not only that, they have also taken over complete control of the Military Farms Department, and the Veterinary Service is now known as the Remount Veterinary and Farms Service in both Dominions.

Concluding Remarks

A question that is often asked is—"what of the R.A.V.C. in the future?" Should there be another war, even if horses and mules are not used in their traditional rôle, I am convinced that an Army Veterinary Service will be required more than ever before. Modern war, with its atomic and hydrogen bombs—and possibly bacteriological warfare—would cause great devastation and destruction of animal life, and one of the outstanding problems for any commander will be the conservation of the food supplies in the country in which he is operating. The preservation of food animals will therefore become priority number one, and the assistance and advice of an efficient Veterinary Service will be essential, not only in combating the effects of atomic bombs on animals and diseases perhaps disseminated by the enemy, but also in the realm of animal husbandry.

In conclusion, I would like to apologise for this scrappy paper, which contains references to so many diseases never seen in this country. To us in the R.A.V.C., however, who had to deal with them, they were, at the time, of supreme importance. I hope therefore that you will forgive me for resurrecting them, so to speak, and inflicting them on you.

Abbreviations

D.V.S. ...	... =	Director of Veterinary Services.
D.D.V.S.	... =	Deputy Director of Veterinary Services.
A.D.V.S.	... =	Assistant Director of Veterinary Services.
D.D.V. & R.S.	=	Deputy Director of Veterinary and Remount Services.
A.D.V. & R.S. ...	=	Assistant Director of Veterinary and Remount Services.
I.A.U.C.	... =	Indian Army Veterinary Corps.
I.O.R. ...	... =	Indian Other Rank.
R.I.A.S.C.	... =	Royal Indian Army Service Corps.
D.D.S.T.	... =	Deputy Director of Supplies and Transport.
Q.M.G. ...	... =	Quarter Master General.
M.F. Dept.	... =	Military Farms Department.

A milking cow and a heifer were electrocuted in a field at Haye, near Callington, Cornwall, recently, when they came into contact with a broken high tension wire from an electric overhead line. The animals belonged to Mr. S. C. Rickard, M.R.C.V.S., of Callington. The line, of 12,000 voltage, snapped when a large branch of an old elm tree fell on it.

CLINICAL COMMUNICATION

AUJESZKY'S DISEASE—A SPORADIC CASE IN A FOX TERRIER BITCH

H. G. LAMONT and W. A. M. GORDON

In March, 1949, Mr. D. McKelvey, M.R.C.V.S., D.V.S.M., of Lisburn, Northern Ireland, consulted one of us (H. G. L.) regarding a suspected case of Aujeszky's disease.

The day previously Mr. McKelvey had been consulted about a case of otitis in a Fox Terrier bitch. At first appearance the bitch appeared to be suffering from an acute pruritus involving both ears, the degree of itchiness being so intense that the bitch had excoriated the skin of a considerable area around both ears. When not actively scratching, the dog presented an attitude of dejection with both front paws covering its ears. It was obviously very distressed. As it was not possible to ascertain the exact cause of the trouble on first examination, the case was treated symptomatically.

The following morning the bitch was dead, having died during the night after rapidly becoming exhausted.

Post-mortem examination was carried out at the Veterinary Research Division. The hair around both ears had been rubbed off and the skin excoriated to a marked extent. The underlying tissues were inflamed. No other gross finding was apparent. The brain was removed aseptically and retained in 50 per cent. glycerine saline.

Transmissions

Successful transmissions were carried out using an emulsion of mixed brain material in Hartley's digest broth. Inoculations were made both intramuscularly and intracranially respectively into rabbits.

Rabbit No. 1 was inoculated with 0.5 ml. of the above emulsion intramuscularly. Characteristic pruritus, such as is associated with Aujeszky's disease, was seen over the inoculation site on the third day after inoculation, death occurring on the fourth day.

Rabbit No. 2 was inoculated with 0.1 ml. of a mixed brain emulsion from rabbit No. 1. The inoculation was made intracranially under general anaesthesia. Death occurred on the third day.

A further passage using brain from rabbit No. 2 was successfully carried out intracranially into rabbit No. 3.

The owner of the dog was interviewed. The dead bitch was one of two dogs kept on the farm, which was largely devoted to milk production. Several sows were also kept. The bitch was an extremely good ratter. No marked increase in the rat population had been noticed, nor had any diseased or dead rats been noticed. There was no previous history of Aujeszky's disease having occurred on the premises before.

References

Lamont, H. G. (1946.) *Vet. Rec.* **58.** 621–625.
——— (1947.) *Ibid.* **59.** 1–3.

Weekly Wisdom

When knowledge goes unshared, the minds of men have no common ground on whish to meet.—Trustees, the Ford Foundation (Statment on use of resources).

ABSTRACT

[Proc. R.S.I. Congress, 1950. Section " D ":—Veterinary Hygiene. *J. Roy. San. Inst.* 70. 359–382.]

I. **Presidential Address,** by Professor H. Burrow, Royal Veterinary College, London.

Professor Burrow refers to the strides made in our knowledge of diseases during the first half of this century, and quotes as an example the inter-relationship of human and bovine tuberculosis. There is an increased tempo of research making it difficult to keep pace with the volume of material being evolved year by year. The *ad hoc* research carried out by those seeking to snatch a quick harvest in the form of a University degree may do little more than give its authors a place in the scientific literature of the day.

Two major wars in one generation have retarded progress somewhat, but even so, the grading of milk indirectly owed its origin to the first world war, and the centralisation of slaughtering to the second. It would be a tragedy if this were to lead to permanent control by Government departments of a service hitherto carried out by local authorities, and the replacement of the local authority officer by " the typical civil servant sterilised of civic pride, of initiative and of powers to exercise the right to think and speak freely ; and if, in fact, as a natural sequence, such meetings as these ceased to be held and were replaced by what at best could only be described as centrally inspired and directed ' staff meetings '."

In the realms of food hygiene our leaders and directors have often been chosen because of their professional or social status, rather than on their experience in the inspection of meat, milk and other foods. It is to be hoped that the sanitary inspector will aspire to professional status, and be spoken of as the " Health Officer." If future progress is to be made, a re-allocation of duties among the several interests involved in the inspection of milk, meat and other foods is long overdue. Some will lose a portion of their functions and replace them by new ones ; there must be mutual trust and a willingness to place in the hands of their colleagues the work for which, by their interest and education, they are most fitted to undertake. In this process there is no room for the accumulation by any one profession or body corporate of control which they are not *thoroughly* fitted to exercise.

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II. **A Scientific Approach to Meat Inspection.** By J. C. Greatorex, Royal Veterinary College, London.

The check to meat inspection in this country in April, 1938, when numbers of municipal veterinary officers were transferred to the service of the Ministry of Agriculture and Fisheries was a set-back to progress in meat inspection. This is especially astonishing when this country insists upon a high standard of inspection for imported meat. In 1940 a golden opportunity presented itself for an improvement in the standard of meat inspection and in the facilities available to the inspectors. This was when the Ministry of Food was formed, and centralised slaughtering took place. Now that the war has been over for five years the time is over-ripe for a more reasoned and scientific approach to meat inspection here.

To ensure a sound meat supply there should be co-operation between the field veterinary service and the abattoir service. The efficiency of the meat industry as a whole would be enhanced if it were placed under one authority only.

1. *The Management of Food Animals Prior to Slaughter*

The meat inspector's functions should not be regarded as commencing only when the slaughtered animal is on the abattoir floor. The proper treatment of animals awaiting slaughter has an important bearing on the fitness of the meat after slaughter. All too often animals are slaughtered after long and arduous journeys without adequate rest prior to bleeding. This leads to imperfect bleeding which impairs the keeping quality and maturation of the meat. It also affects the glycogen reserves, which are depleted by increased muscular activity, so that the carcase rapidly approaches the neutral and later the alkaline state, instead of maintaining a prolonged acidity. The maintenance of this acid reaction in meat for several days is one of the most important factors in retarding putrefaction. To ensure the formation of enough lactic acid, essential for *rigor mortis*, the animal should be allowed limited quantities of good hay rich in carbohydrates. In addition to checking putrefaction, lactic acid converted from the muscle glycogen assists in the coagulation of muscle protein, and by converting the collogen content of connective tissue into gelatine, loosens the meat texture so rendering it more tender and palatable. The colorimetric method of *p*H testing is popular on the Continent. The nitrazine yellow test, indicating a *p*H range of between 6 and 7, gives an immediate result, and saves time. Biochemical tests may also be used for bleeding of meat. It is obvious that the proper resting and fasting of animals awaiting slaughter is of great practical importance.

2. Ante-mortem *Inspection and Emergency Slaughter*

Clinical examination of resting animals should take place, and facilities should be provided at each abattoir. Slaughtering should be according to the veterinary officer's findings and not the convenience of the slaughterman. An isolation slaughterhouse should be provided for segregation of diseased stock. Fevered animals, properly rested and treated, and slaughtered when they have recovered, would yield sound meat. At present they are slaughtered on arrival and condemned. Facilities should be available for bacteriological aids to prevent food wastage by the destruction of meat which bacteriological examination might show to be fit for human food, and also to prevent food poisoning.

Contamination during " dressing," and by human carriers, as well as rats and mice, should be guarded against. Dogs and cats should be excluded from the abattoir, as they have been shown to be capable of acting as salmonella carriers.

3. *The Scientific Judgment of Tuberculous Carcases*

The Memo. 62/Foods recommendations were based on knowledge now out-dated. It is not the number of tuberculous lesions in a carcase that matters, but the character of the lesions present, and in this sense " breakdown lesions " are particularly dangerous. The recognition of these lesions requires someone to interpret them who is skilled in animal pathology and bacteriology. For some time an appreciable percentage of our animals will show tuberculous lesions, and for this reason the author wonders if we could accept the Freibank system of sterilising tuberculous meat, in preference to the present system of basing safe and unsafe meat upon judgments which, whilst sincere, are highly fallible owing to the human factor which enters into them.

4. *Control of Disease based on* Post-mortem *Findings in the Abattoir*

Following the first world war the incidence of *Cysticercus bovis* in cattle, and its mature form *Taenia saginata* in man, increased in many parts of the world. After a subsidence

between the two wars, it has again been found not only here, but in Germany and Denmark. Percentages of this condition found in some large municipal abattoirs in England and Wales are given. It is reasonable to assume that the increased incidence of the condition in this country may be due to temporary residence here by people of continental origin during the war, and increased traffic between the Continent and this country. Some effort should be made to trace the origin, as in cases of salmonella infection, and so prevent pastures becoming infected. It is a negative policy to condemn carcases in the abattoir without tracing the disease back to the farm, and so doing something to reduce animal diseases, apart altogether from any effect upon the human population. Meat inspection should be raised from a monotonous routine to that of scientific application of available knowledge.

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III. Recent Milk and Dairies Legislation and the Provision of a Safe Milk Supply. By GEORGE TULLIS, Divisional Veterinary Officer, Ministry of Agriculture and Fisheries.

1. *Introduction*

The ultimate aim of the new legislative measures is to ensure that at some future date all milk consumed will be rendered safe by some method of sterilisation or produced from cows free from diseases communicable to man. It is not true to say that the veterinary profession does not favour pasteurisation of milk. Sterilised milk, which is now recognised by legislation for the first time, is disease-free, and whilst its nutritional value may be unimpaired, its taste is unpleasant, and unpopular, with children especially, as a food. As for pasteurised milk, the H.T.S.T. process with its reduced temperature of 161° F. interferes little with taste or cream line, and milk so treated is readily taken by children. The supervision of pasteurisation plants will eventually become a major problem. Heat treatment does not remove the obligation to prevent initial infection and contamination at the source. The author proposes to deal with two legislative instruments only, *viz.*, The Milk and Dairies Regulations 1949, and the Milk (Special Designation) (Raw Milk) Regulations 1949. Loss of milk resulting from cattle diseases is mentioned, and tuberculosis is considered by far the most damaging to public health. Legislation in the past has concentrated on hygienic methods and equipment rather than on the prevention of milk-borne disease. An outstanding example is the "accredited herd," often composed of cows that have failed to pass the tuberculin test. Sir William Savage once said that "discredited milk" would be a more fitting description for milk from such herds. Whilst clean milk is very necessary and desirable, tubercle-free milk is an absolute essential.

2. *Milk and Dairies Administration*

This involves three Ministries, Health, Food and Agriculture: production the last mentioned, milk-borne disease the Health Ministry, and distribution being the responsibility of the Ministry of Food. Responsibility for administration was transferred from local authorities to the Ministry of Agriculture through the Food and Drugs (Milk and Dairies) Act 1944. The milk sub-committees of the county agricultural executive committees in effect now replace the local authority milk committee. The complex administrative set-up is briefly discussed, and the views of the joint committee of the B.M.A. and the N.V.M.A. are quoted to the effect that as the officers responsible to these committees are not expected to possess any technical qualifications, it is possible that an improvement in uniformity may be attained at the cost of reduced standards of efficiency.

3. *The Milk and Dairies Regulations 1949*

A register of farms will be kept, and these farms will be inspected and are expected to attain certain standards. All non-designated dairy cows on such premises will be clinically inspected by a veterinary surgeon "at such times as may be required by the Minister." At present this means once in 12 months, and is thus of little value as a means of disease control. The medical officer of health is given powers to stop the sale, or to order heat treatment, of any milk he suspects of being disease infected.

4. *The Milk (Special Designation) (Raw Milk) Regulations 1949*

These Regulations are most important as far as animal health and the prevention of bovine tuberculosis bacilli in milk are concerned. The double injection, single comparative, tuberculin test is an effective diagnostic agent in the hands of the veterinary profession. The ultimate goal of the herd complying with the provisions of the regulations is entry into the Tuberculosis (Attested Herds) Scheme. About 27 per cent. of the total cattle population of the county of Somerset has been cleaned up. The figures are higher for South-West Scotland, South Wales, Cumberland and Westmorland, in that order. In the English Midlands and places where the "flying herd" system of dairy farming is in operation, the eradication scheme is somewhat handicapped. The disposal of reactors presents a difficult problem.

5. *Licences to Produce Tuberculin-tested Milk*

Licences to produce milk of this designation will be granted when the following conditions are fulfilled:—

1. Premises and production methods comply with the Regulations.
2. The milk passes the tests prescribed by the Regulations.
3. The health of the cattle is up to the standard required by the Regulations.

The requirements as to buildings are the same for non-designated as well as designated milk production. Under the second condition, the milk is expected to pass three consecutive tests within 30 days. Condition three deals mainly with the removal of tuberculous infection from the herd. The pre-licence tuberculin test is carried out by the herd-owner's private veterinary surgeon, who submits test results for animals that fail as well as those that pass the test. All reactors must be removed from the herd, and the herd must be isolated from all other cattle.

6. *Conclusion*

The Regulations will provide an impetus to the voluntary eradication of disease from individual dairy herds. Possibly the additional fourpence per gallon of milk may be a persuasive factor. By the time total eradication of tuberculosis is well advanced, it is hoped that it will be economically possible to enforce compulsory testing. The Regulations have not lowered the standard for cow-houses. In the past certain local authorities demanded too palatial cow-houses. The standard laid down for *all* dairy farms is a decided advance. A major criticism of the Milk and Dairies Regulations is the failure to provide control in a greater measure over the producer-retailer of non-designated milk. Whilst premises and production are controlled, there is no provision for the sampling and testing of his milk. Provided the Regulations are administered with justice and common sense they will go a long way to ensure the production of a safer raw milk supply.

D. J. A.

NOTES AND NEWS

Diary of Events

Oct. 10th.—Commencement of Course of three Special University (of London) Lectures in Veterinary Science, at the Royal Veterinary College, by Professor F. W. Rogers Brambell, D.Sc., F.R.S. (See Notice.)

Oct. 10th.—Scientific Meeting of the Zoological Society of London, Regent's Park, N.W.8, 5 p.m.

Oct. 12th.—Meeting of the Ayrshire Division, N.V.M.A., at Ayr (Hotel Dalblair), 2.30 p.m.

Oct. 13th.—General Meeting of the South Wales Division, N.V.M.A., at Carmarthen. (Dolwar Café), 2.15 p.m.

Oct. 17th.—Meeting of the Southern Counties Division, N.V.M.A., at Winchester (Royal Hotel), 6 p.m.

Oct. 17th.—Meeting of the Agriculture Group of the Society of Chemical Industry, at the Chemistry Lecture Theatre at the Royal College of Science, S.W.7, 2.30 p.m. (Dr. K. L. Blaxter, of the Hannah Dairy Research Institute: "Iodinated Proteins and Thyroxine in Animal Husbandry.")

Oct. 18th.—Meeting of the Scottish Metropolitan Division, N.V.M.A., at Edinburgh (Moredun Institute), 3.30 p.m. (The meeting will follow the James Clark Memorial Unveiling Ceremony.)

Oct. 19th.—Meeting of the Hertfordshire and Bedfordshire Division, N.V.M.A., at St. Albans (70, Holywell Hill), 2.30 p.m.

Oct. 19th.—Meeting of the South-Eastern Division, N.V.M.A., at Tunbridge Wells (Royal Mount Ephraim Hotel), 2.30 p.m.

Oct. 20th.—Autumn meeting of the Eastern Counties Division, N.V.M.A., at Ipswich (Great White Horse Hotel), 2 p.m.

Oct. 20th.—Meeting of the North of Ireland Division, N.V.M.A. in the Lecture Theatre, Queen's University, Elmwood Avenue, Belfast, 7 p.m.

Oct. 20th.—Meeting of the Biochemical Society, in the National Institute for Medical Research, The Ridgeway, Mill Hill, London, N.W.7, 11 a.m.

N.V.M.A. Council and Committee Meetings

The next Council and Committee Meetings of the Association will be held in London on October 30th, 31st; and November 1st.

The time-table is as follows:—

*Monday, October 30th, at 36, Gordon Square, W.C.*1.
2 p.m.—Organising Committee.
4 p.m.—Home Appointments Committee.

*Tuesday, October 31st, at 36, Gordon Square, W.C.*1.
9.30 a.m.—Parliamentary and Public Relations Committee.
10.30 a.m.—Veterinary State Medicine Committee.
2.30 p.m.—General Purposes and Finance Committee.

*Wednesday, November 1st, at the Connaught Rooms, Great Queen Street (off Kingsway), W.C.*2.
11 a.m.—Council Meeting.

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CONFERENCE ON ARTIFICIAL INSEMINATION

Members intending to be present at the Association's Conference on Artificial Insemination to be held on Thursday, November 2nd, 1950, in the Auditorium, The Wellcome Research Institute, Euston Road, London, N.W.1, are asked to notify headquarters N.V.M.A. *not later than Friday, October 27th.* Numbers are required for catering purposes.

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ANIMAL HEALTH TRUST APPOINTMENT

The Animal Health Trust announces that Col. T. W. Daniel, D.S.O., of Smear Farm, Reydon, Southwold, Suffolk, has been appointed Organiser for the County of Suffolk.

Col. Daniel was educated at Uppingham and Pembroke College, Cambridge, and during the War served in the 7th Queen's Own Hussars. He is a Member of Council of the Shire Horse Society and was for many years a Member of Council of the Royal Norfolk Agricultural Association. He is also a Steward of the Smithfield Club.

PERSONAL

Forthcoming Marriage.—Hooper—Brudenell.—The engagement has been announced between Robert, only son of the late Mr. and Mrs. E. B. Hooper, of Victoria Park, Cardiff, and Patricia, only daughter of Mr. and Mrs. C. S. Brudenell, of The Drive, Ashford, Middlesex.

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R.C.V.S. OBITUARY

Naismith, John Adam Ardrey, "Roslyn," Windmill Road, Hamilton, Lanarks, fourth son of Robert and Mrs. Naismith of that address. Graduated Glasgow, July 16th, 1945; died suddenly at Grangemouth, September 27th, 1950.

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AREA ERADICATION PLAN FOR TUBERCULOSIS IN BOVINES

Mr. Tom Williams, Minister of Agriculture, at the Press Conference held on September 29th, 1950, to introduce the area eradication plan for tuberculosis, gave a general review of the steady progress which had been made since the introduction of the "Attested" herd scheme in 1935, and recalled that the Gowland-Hopkins Committee had estimated that 40 per cent. dairy cattle were infected with tuberculosis and that the over-all figure including beef cattle had an infection rate of 20 to 25 per cent.

The Minister is reluctant to commit himself on the degree of pressure which will be brought to bear on recalcitrant farmers, and would prefer to see further progress depending on voluntary attestation.

The Minister expressed his appreciation of the co-operation which he had had in presenting this scheme from both the N.V.M.A. and the N.F.U.

The Shetland Isles and the Isles of Scilly will be declared eradication areas as soon as the necessary legislation is passed.

Mr. Williams finished his statement by expressing his confidence that full co-operation between the industry, the veterinary profession and the Government, should enable us rapidly to achieve our goal.

We may remind our readers that the plan, which came into operation on Sunday last and to which, on behalf of the profession, we accorded a warm editorial welcome last week, embodies the following features:

Bonuses for Attested Herds.—Briefly, each attested herd will qualify for bonus for six years from October 1st, 1950, or from the date on which it first becomes "supervised," if that is later. The bonus will be based on milk sales or the number of cattle on the farm, at the option of the farmer. The milk bonus will be at the rate of 2d. a gallon for four years followed by 1d. a gallon for two years. The capitation" bonus will be at the rate of £2 per head for four years followed by £1 per head for two years. The "capitation" bonus is particularly designed for owners of beef herds and rearing herds. Owners of attested herds who also have a T.T. licence (whether they take the milk bonus or the capitation bonus) will in addition receive the T.T. premium on milk sold. This premium will be at the rate of 2d. a gallon from October 1st, 1950, and will be subject to negotiation at the annual February Price Review, providing that 2d. will be the minimum rate until March 31st, 1954.

The First Free-testing and Eradication Areas

The proposals for S.W. Scotland and S.W. Wales are as follows:

South-West Scotland.—The "free-testing area" will consist of the whole of the counties of Ayr, Bute, Wigtown, Kirkcudbright, Renfrew, Dumfries, Dunbarton, Stirling, Lanark and Peebles, and in the county of Argyll the Kintyre peninsula (south of the road from West Loch Tarbert to Loch Fyne *via* Glenrelloch and Barr Hill) with the islands if Islay, Jura and Colonsay and adjacent small islands including Gigha and Sanda. There are about 620,000 cattle in this area of which 480,000 or 77 per cent. are already in attested herds. In Ayr and Bute the proportion is over 90 per cent. On October 1st, 1952, this area (except the four counties of Dunbarton, Stirling, Lanark and Peebles) will be declared an Eradication Area. It is hoped that in October, 1951, the Ministry will be in a position to give notice that on October 1st, 1953, the four excepted counties will be added to the Eradication Area.

South-West Wales.—The "free-testing area" will consist of the whole of the counties of Cardigan, Carmarthen and Pembroke, and that part of Glamorgan west of the Swansea valley, including the Gower peninsula. There are about 320,000 cattle in this area of which 200,000 or 62 per cent. are already in attested herds. On October 1st, 1952, an Eradication Area will be declared consisting of the county of Cardigan, the county of Carmarthen (except the

Bettws Mountain district) and that part of the county of Pembroke to the north and east of the railway line from Fishguard through Treffgarne and Clarbeston Road to the county boundary with Carmarthen. (N.B. Slight adjustments of the Pembroke portion may be made.) The southern part of Pembroke, W. Glamorgan and the Bettws Mountain district, will be omitted from the first Eradication Area because less progress has been made with the eradication of tuberculosis than in other parts of the area. It is hoped, however, that in October, 1951, the Ministry will be in a position to give notice that the remainder of the free-testing area will be added to the Eradication Area in 1953.

The First Attested Areas.—All herds of cattle in the Shetland Islands and the Isles of Scilly are already attested. As soon as the necessary Orders have been made, it is intended to declare these islands the first two Attested Areas. This should be effected by the end of 1950.

Arrangements in the Free-testing Areas.—Free-testing is being offered (as well as the attested bonuses) in the areas intended to become eradication areas so that farmers should not be deterred from starting to clean up their herds by the cost of having them tested. The tests will be carried out free of charge by the Ministry's veterinary staff. They will be continued as long as necessary to enable the herd owner to qualify for admission to the Attested Herds Scheme and thus for bonus payments. If a farmer in either of the two free-testing areas takes no steps to clean up his herd, or starts so late that his herd is neither Supervised nor Attested under the Attested Herds Scheme by the time that an Order declaring an Eradication Area including his farm comes into operation, he will have lost his chance of qualifying for bonus payments. In a free-testing area, movements of cattle will go on in the same way as at present. The rules of the Attested Herds Scheme will continue to apply to Attested Herds and Supervised Herds.

Arrangements in the Eradication Areas.—When an area is declared an Eradication Area, all herds in it will be tested compulsorily. Reactors will be slaughtered with payment of compensation on the basis of the estimated value of the animal as an untested animal. The rules of the Attested Herds Scheme applicable to Supervised Herds and Attested Herds will be applied to all herds in the area. The movement of cattle into the area will be controlled by licence. Any local imported animals landing place will be excluded from the area when it is declared and defined by Order; and there will be provision for movement through the area by rail or water or by road vehicle. No untested animal will be admitted to any farm in the area. Irish cattle will be admitted if they have passed a tuberculin test within 14 days before shipment or since landing. (They will, of course, have to be isolated on the farm and be retested after 60 days.) Cattle from attested herds outside the area will be able to use the markets in the area, but other cattle will have to use markets outside the area which still provide for unattested cattle. The same applies to collecting centres, though the Ministry will consider allowing fat cattle from herds outside the area to be sent to collecting centres in the area under certain conditions if it appears that facilities outside the area are inadequate. Cattle from within the area may be sent to markets for attested stock outside the area and to agricultural shows in any part of the country at which attested cattle may be shown.

Arrangements in Attested Areas.—The Minister may make an Order declaring an attested area if he is satisfied that for practical purposes tuberculosis is non-existent in the area. In general, attested areas will be subject to the same conditions as eradication areas. There will, however, be free movement between premises (including an attested market) within an area, except from any premises on which a reactor occurs. Movement from such premises will be controlled by licence until the herd has been cleared of infection.

Further Development of the Eradication Plan.—As the first areas pass into the eradication and attested stages, it is intended to make a start with other areas. But the area plan cannot be applied until a good proportion of cattle in an area have become attested under the voluntary Attested Herds Scheme. When this stage has been reached, notice will be given of intention to declare an eradication area and during the period of notice free tests will be provided. Moreover, the plan is not applicable to small isolated areas. An eradication area must be large enough to reduce to the minimum interference with the normal flow of cattle movements. The area must also be as self-contained as possible, with the minimum of movement into it from outside otherwise than from attested sources. There must be suitable marketing facilities inside the area for cattle in the area, and outside the area for cattle outside it. Normally, therefore, an area will be fairly large—say, the equivalent of two or three average counties. Until some experience has been gained of the effect of the attestation bonus in stimulating progress, no definite statement can be made of the areas which are likely to be the next free-testing and eradication areas. But assuming satisfactory progress with voluntary attestation, the areas likely to be suitable for development as eradication areas within the next few years appear to be:—The counties of Cumberland and Westmorland and the Furness district of Lancashire. (Westmorland is 61 per cent. attested and Cumberland 36 per cent.); the remainder of Argyll and the Lothian and Border Counties in Scotland, one or two of which are already nearly 50 per cent. attested; the counties of Brecon, Radnor, Merioneth and Montgomery. (Merioneth is 49 per cent. attested. The other three counties are well behind, but they contain many beef herds and it is hoped that the new bonus will result in rapid progress.) The progress of the plan will be kept under constant review, and each area in which substantial progress with voluntary attestation is being made will be considered on its merits for development as an eradication area. Early in 1954 the whole of the financial and other arrangements under the plan will be the subject of a special review in the light of early experience of the working of the plan.

[The Attested Herds Scheme was started in February, 1935. By the outbreak of war there were 10,000 attested herds. Latest figures are that at the end of August, 1950, there were over 50,000 attested herds in Great Britain, containing just over 2,000,000 cattle: this is nearly 22 per cent. of al cattle.]

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NEW FOREST AS A TUBERCULIN TESTED AREA

By-Law Approved by Verderers

The Southern Daily Echo reports that the New Forest Verderers have approved a draft by-law as the first step towards making the New Forest a Tuberculin Tested area. Under this, from January 1st next no cattle will be allowed to be depastured on the open forest unless the herd to which they belong has been tested with tuberculin by a veterinary surgeon subsequent to July 1st last and the result of such tests has been lodged with the clerk to the Verderers.

Any cattle born or acquired after January 1st, 1951, which have not been tested with tuberculin will also not be allowed to be depastured until they have been tested.

The by-law also provides that the Verderers may from time to time between January 1st, 1951, and December 31st, 1955, pass a resolution requiring that herds to which cattle depastured in the open forest belong, shall be tested or retested as a condition of depasturing.

Contravention of the by-law renders an offender liable to a fine of £2 with a continuing penalty of 10s. a day.

* * * * *

LEGAL NOTES

Docking and Nicking of Horses Act

The first prosecution under this Act took place recently at the Louth County Magistrates Court in Lincolnshire, when a man was charged with unlawfully docking a horse's tail without having in his possession a certificate from a member of the Royal College of Veterinary Surgeons stating that the operation was necessary. The accused pleaded "guilty" and stated that he was ignorant of the Act.

The police evidence was that on visiting the accused's land, the tails of two foals had been found docked. The bench in convicting discharged the accused absolutely on payment of costs in view of the fact that it was the first case under the Act, and that the purpose of the prosecution had been served by calling attention to the Act.

In reporting the above conviction, it should be mentioned that many members of the profession do not appear fully to appreciate the provisions of this Act. An article on the Act was published in *The Veterinary Record* on January 21st, 1950. To recapitulate, the position is as follows:

After January 1st, 1950, the docking and nicking of the tails of horses is prohibited except in such cases as a member of the Royal College of Veterinary Surgeons has certified in writing that the operation is necessary for the health of the horse because of disease or injury to the tail. The definitions of "docking" "nicking" and "horses" given in section 3 of the Act should be noted carefully.

After January 1st, 1955, no docked horse coming from outside the United Kingdom can be imported unless permission is given by an officer of Customs and Excise or licensed by the Minister of Agriculture.

It must be emphasised that an idea which exists that it is legal

to dock the tail of a foal under a certain age is quite erroneous. No matter what the age of the animal, may be the operation can only be performed if a veterinary surgeon has certified in writing that the operation is in his opinion necessary for the health of the horse because of disease or injury to the tail, and such a certificate cannot be given lightly.

. . . . . .

Veterinary Council of Ireland.—The Veterinary Council of Ireland recently successfully brought a case against Mr. Andrew Quealy, M.R.C.V.S., of Dungarvan, Co. Waterford, in that he was practising veterinary surgery within the Republic of Ireland although his name was not inscribed on the Irish Veterinary Register.

The Court found Mr. Quealy guilty, and imposed a fine and payment of costs.

. . . . . .

Three Farmers Fined for Sale of Dirty Milk.—Farmers who persist in sending dirty milk to the creameries and commit other breaches of the regulations, were warned by the Stewartry Milk Sub-committee that they were in danger of having their registrations cancelled.

In the case of one farmer who appeared on two counts of having dirty milk and failure to seal his cans, it was stated that he was suspended in 1947, and his licence restored two months later. Last year he had three bad samples, and in July and August of this year "B. coli" was evident in his milk. Reports also showed that the milk cans had been tied with string, the necessary seals being absent. The farmer said he had done everything possible to put the matter right. A recent sample was quite satisfactory. With regard to failing to seal the cans, he had been very busy, and it had been ignored. He did not appreciate it was an offence to hand over the cans to a carrier without proper seals.

After consulting in private, the committee announced that the licence had been suspended.

Two other farmers who appeared on counts of having "B. coli" in their milk also had their licences suspended. The chairman of the sub-committee said that agriculturists in general must realise that the regulations in regard to milk had to be strictly obeyed. —*Scottish Farmer.*

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THE MILK RECORDING AND BREEDING MOVEMENT

In the course of his review of the movement, at the meeting of the Farmers' Club on Monday last, Mr. Joseph Edwards, Head of the Production Division of the Milk Marketing Board, said that the description "National Milk Records" was given to the official milk recording movement when the Board took it over in January, 1943. Before this time recording was organised largely on a county basis by branches which were independent and which were supervised by and received financial support from the Ministry of Agriculture. National policy was determined by the Central Council of Milk Recording Societies, on which the branches and the Ministry were represented.

In 1917 there were 531 herds recorded in the whole of England and Wales. The number grew to 5,636 in 1926 and began to decline afterwards. In 1943—the year in which the Board took over—there were 4,120 herds in the movement. To-day the number exceeded 24,000 and it was still increasing.

In the early days the movement had very little strength outside of the South and West, but now it ranged over the whole country. In 1917 there were only 81 herds recorded in the whole of the North-East region of the Board; to-day there were nearly 3,000. There was no record of any herds in the movement in the whole of Wales in the years 1917 to 1919, though now there were more than 2,000. The spread of the milk-selling habit had taken the recording movement with it and the development of artificial insemination had also had something to do with it.

Turning from herds to cows, the yields of 500,000 cows out of 2,800,000 (approximately 20 per cent.) were being weighed officially each year. In one region the proportion was as high as 41 per cent., while the lowest was 12 per cent. This half-million included many breeds and a large number of non-pedigree cattle in commercial herds. The nature of the expansion among six of the main dairy breeds (indicated in tabular form) showed the greatly increased scope for breeding from recorded stock which now existed in certain breeds. He thought the most that should be deduced from the yield levels that accompanied those breed numbers was that over-all performance had been maintained or improved slightly in spite of a considerable "dilution effect" in a relatively short time.

Of the 500,000 recorded cows, the 200,000 pedigree and grading-up animals averaged 740 gallons and the 300,000 non-pedigree 680 gallons, while the output of non-recorded cows was estimated to be 600 gallons.

As the result of a calculation of the present composition of the national dairy herd by breed or breed type—it might be entitled "the blood of our breeds in our dairy cattle"—it was seen to be comprised of Shorthorn 34 per cent., Friesian 32 per cent., Ayrshire 11 per cent., Channel Island 9 per cent., and others 14 per cent. A.I. facts for inseminations carried out in the past year showed that changes in this grouping would take place in the future.

The heightened interest in breeding good dairy cattle was seen not only in the increase in the size of the recording and A.I. movements, but also in the membership of the main Dairy Breed Societies in Great Britain. There were 9,200 members in 1939, whereas now there are 32,000, the smallest increase being one of 200 per cent. and the largest nearly 700 per cent.

To-day there was a very great interest in butterfat testing—even last year there was a 20 per cent. increase in numbers of cows tested over the previous year—and, as with milk records, there was now a much broader base for methods designed to improve the quality of our milk.

Another important administrative feature of the milk recording movement was ear-marking. All recorded cows had to carry the N.M.R. ear-mark (tattoo) from the time they entered the milking herd. Also, the A.I. centre told the N.M.R. branch offices about all inseminations in recorded herds, so that the Milk Records Officer might follow up with ear-marking after nine months. In this way many members had adopted the ear-marking practice and, thanks to the efforts of all N.M.R. staffs, nine out of every ten A.I. heifer calves were now being ear-marked. The best way to mark recorded cattle is constantly being examined by the Board and its National Advisory Committee of N.M.R. No system of identification yet tried had been found to be as reliable as tattooing, and trials of the latter had included the examination of different inks and the testing of each new tattooing treatment said to be an improvement on the standard type. The marking of animals as calves was increasing in popularity, and because of this a small tattooing symbol was now being tried out.

In his recital of the activities of the Bureau of Records (a unit formed in 1947 to act as a central clearing house for all milk records information), Dr. Edwards said that the main work which the Bureau did for the A.I. movement was the scrutiny and completion of pedigrees of bulls put on offer to the Board. This service was greatly appreciated by Advisory A.I. Committee which, in pre-Bureau days, frequently wasted time and enthusiasm on the inspection of a bull whose pedigree turned out later to be not good enough. Now committees had the Bureau check first and the inspection afterwards. When a bull had been approved by the Board and the Ministry and had gone to an A.I. centre, his pedigree was revised at intervals of six months, new records on his dam, his sire's progeny-test and his own (if he had one) being added. The Bureau's study of the bull and the number of his recorded daughters (embracing 25,000 bulls with 146,000 daughters in milk) gave sharp emphasis to the need for the A.I. movement to make progeny-testing arrangements on its own, for it was found that 80 per cent. of bulls in use in pedigree herds had so little scope that they averaged less than ten recorded daughters each completing one lactation.

Milk records properly kept might be used for the study of a factor of great importance in economic milk production—the fertility of the cow and the herd. Thanks to the splendid co-operation of several hundred N.M.R. members who kept accurate service dates, the Board were now beginning to get facts (conception rates) on this subject. At first they wanted them to see the circumstances in which the results in herds using natural mating were as good as equal to or less good than the conception rates obtained by A.I., but they found they had their own significance. The results obtained so far suggested that the infertile herd was more of a problem than the infertile cow and that team research should be directed to it.

The national development of the revolutionary breeding technique represented by artificial insemination was shared by the Board, with its 22 centres and 66 sub-centres, and by non-Board organisations comprising eight centres and 21 sub-centres: it was now a country-wide network. With 60,000 to 70,000 farmers using A.I. and 20 per cent. of the cattle in the country already being bred in this way, the question arose how much more expansion was likely to take place. A.I. set out to be attractive to the small producer, of whom there were 100,000 (with herds of less than 15 cows) out of the total 160,000 registered with the Board. What was frequently overlooked was the fact that this group owned only one-third of the cows; two-thirds (nearly 2,000,000 cows) were in the larger herds. There was plenty of evidence among the A.I. membership, particularly in the Midlands, that A.I. was attractive

to the man with 40 to 60 cows or even more, and if this proved to be so there seemed no reason why the proportion of cows inseminated should not increase to 40 per cent. in the next few years—this was the proportion in Denmark at the present time. Further expansion in pedigree herds in this country was also to be expected. The continued success of A.I. would depend upon never-ceasing efforts to secure the best bulls.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

SWINE FEVER:

Cheshire.—58, Rush Green Road, Lymm (Sept. 25th).

Derby.—53, Nottingham Road, Somercotes (Disease at: No. 2 Sty Seeley Terrace, Somercotes) (Sept. 27th).

Dorset.—99, Old Wareham Road, Dorset (Sept. 25th); Upton Park Farm, Upton, Lytchett Minster, Pool (Sept. 26th).

Lancs.—Bridgend Farm, Bispham, Blackpool (Sept. 25th); 75, Heyhouses Lane, St. Anne's-on-Sea (Sept. 26th).

Notts.—The Cross, Carlton, Worsop (Carlton-in-Lindrick Parish) (Sept. 28th); The Orchard, Daneshill Road, Lound (Sept. 29th).

Sussex, W.—Upper Chickens Farm, Wareham (Disease at Hardearnt Farm, Wareham (Sept. 29th).

Yorks (E.R.).—731, Holderness Road, Hull (Disease at T. L. Richardson, 42, Madeley Street, Hull; carcase at: Government Slaughterhouse, Gt. Thornton Street, Hull) (Sept. 28th).

Yorks (W.R.).—Stocks Hill Farm, Meuston, Leeds; Delph Slack Farm, Delph, Oldham, Lancs. (Sept. 25th); 35, Tusmore Street, Rotheraham (Disease at: Sty at back of Truro Place, Rotherham; carcase at: Corporation Slaughterhouse, Rotherham) (Sept. 27th); Bradley's Farm, Cononley, Keighley (Sept. 28th); 16, North Castle Street, Halifax (Disease at: Piggery at Brackenbed Grange, Wheatley, Halifax; 6, Orchard Cottages, Low Street, Sherburn-in-Elmet. Manor Farm, Purton, Pontefract (Sept. 29th).

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FERTILISERS AND FEEDING STUFFS ACT, 1926

ADVISORY COMMITTEE

The Minister of Agriculture and Fisheries and the Secretary of State for Scotland, after consultation with the interests concerned, have appointed a reconstituted Advisory Committee under the Chairmanship of Sir Edmund Bacon, BT., O.B.E., T.D., for the purpose of assisting and advising them with respect to the making of regulations under the Fertilisers and Feeding Stuffs Act, 1926.

The composition of the Committee is as follows: Sir Edmund Bacon, BT., O.B.E., T.D. (Chairman), Mr. H. H. Bagnall, B.SC., F.R.I.C., Mr. D. J. Bird, M.B.E., Mr. E. H. I. Brown, Mr. C. C. J. Bullough, Mr. A. M. Cameron, B.SC., F.R.I.C., Dr. C. Crowther, M.A., PH.D., Dr. E. M. Crowther, D.SC., F.R.I.C., Mr. J. K. D. Dow, B.SC., M.R.C.V.S., Dr. G. Matthew Fyfe, M.D., CH.B., D.P.H., F.R.C.P., Mr. C. W. Higgs, Mr. J. M. Howie, Mr. E. P. Hudson, Mr. A. M. Hutcheson, Dr. D. N. McArthur, D.SC., PH.D., F.R.I.C., Dr. T. Manning, B.SC., PH.D., A.R.I.C., Mr. E. C. Mercer, Mr. C. Nevile, Mr. C. Norman, Mr. J. Ure Primrose, D.L., J.P., Mr. F. F. Roberts, O.B.E., Mr. A. R. Semple, Mr. E. B. Stevenson, Mr. G. Taylor, O.B.E., F.R.I.C., Mr. Eric Voelcker, A.R.C.S., F.R.I.C., Mr. G. T. Williams and Mr. F. L. Winter.

Government Departments will be represented as follows: Ministry of Agriculture and Fisheries: Mr. B. W. Phillips, O.B.E.; Department of Agriculture for Scotland: Mr. G. Page; Ministry of Agriculture for Northern Ireland: Dr. J. Houston, D.SC.; Department of the Government Chemist: Dr. J. R. Nicholls, D.SC., F.R.I.C., Ministry of Food: Mr. H. R. Humphries, O.B.E.

Communications for the Committee should be addressed to the Secretary, Mr. C. H. Dee, Ministry of Agriculture and Fisheries, 14-21, Chester Terrace, Regent's Park, London, N.W.1.

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MINISTRY MODEL ABATTOIRS

At the recent yearly conference of the National Association of British Market Authorities the delegates examined two Ministry models of "model abattoirs" and some plans brought by Mr. A. W. Anderson, Chief Slaughterhouse Supervisor to the Ministry of Food. These, he said, were not meant to be perfect, but they would improve the techniques of the trade beyond recognition. The Ministry models, added Mr. Anderson, were designed to give humanitarian treatment of animals the highest possible standard of hygiene and the immediate segregation of cases of suspected disease. They were designed on the single line control system, whereby the entire workings of the abattoir were under the direction of one authority. This was opposed to abattoirs built in the past with facilities for individuals to go in and kill their own stock.

"The machine age has bypassed the slaughterhouses; we are still hoisting cattle off the abattoir floors in exactly the same way as Rebecca took water from the well," said Mr. Anderson, while the skilled slaughterman spent half his time moving parts of the cattle many yards to store rooms and running about catching animals for slaughter. Slaughterhouses were a problem; no one could say that one particular type was suitable for a particular place. He advised local authorities to get in touch with the Ministry of Food and people in the trade.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

INTESTINAL ADHESIONS TO THE UTERINE STUMP

Sir,—The recent correspondence regarding adhesions after hysterectomy is of great interest. I too have recently destroyed an old bitch, too obese for accurate palpation, in which a collection of abdominal fluid simulating dropsy accompanied vague and persistent "gastric" symptoms and progressive emaciation.

Post-mortem examination revealed extensive and complicated adhesions between the uterine stump, and the ileo-caecal region, resulting in gross distension of the colon throughout its length with fluid faeces. The hysterectomy had been performed elsewhere three years earlier.

One is tempted to suggest that so long as the uterine stump is dealt with by such methods as from ligation, particularly if "improved" by a liberal touching up with pure phenol, we may expect to encounter such cases from time to time. It is not too difficult a matter to deal with a stump by acceptable surgical methods.

Yours faithfully,

R. E. WILLIAMS, B.V.SC., M.R.C.V.S.

Nobles,
Easebourne,
Midhurst,
West Sussex.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
Sep. 1st to 15th, 1950	7	1	—	—	1	35
Corresponding period in—						
1949	20	—	9	—	4	—
1948	3	1	7	—	6	—
1947	9	—	44	—	16	6
Jan. 1st to Sep. 15th, 1950	265	20	102	—	20	128
Corresponding period in—						
1949	150	13	366	—	33	5
1948	70	1	247	1	39	23
1947	76	103	760	1	57	26

NOTE.—The figures for the current year are approximate only.

* Excluding outbreaks in Army Horses.